TOP FY 2000

University of Tennessee at Martin

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1 PROJECT PURPOSE

As the emergence of new technologies become more embedded within our culture, the manifestation of digital disparities become even more prevalent. Access to information is of greater significance than in past years due to the raising of knowledge and proficiency standards that have been linked to communication through the National Information Infrastructure. While the generation of new knowledge and information is of benefit to society in general, the technological gap between those who have and do not have access to information continues to broaden. Consequently, rural communities have experienced increasing disparities in the digital divide. The smaller economic base of these communities is not large enough to attract the same level of telecommunications infrastructure as compared to urban areas.

Therefore, the purpose of this proposal is to provide ***Community Access to Lifelong Learning*** through the ***University*** of ***Tennessee*** at ***Martin (CALL-UTM)*** by providing under-served populations in rural West Tennessee access to technology, information, training, courses, and programs currently offered on UT Martin's main campus. In concert with the vision of the Tennessee Information Infrastructure (TNII), this project will attain interoperability among partners and achieve the following ***project goals via interactive compressed video, online courses and distance learning curricular and instructional methods:***

1 Increase community awareness, access to information and involvement in Tennessee's Head Start Program and Early Intervention Systems.
2 Prepare more in-service teachers to meet state licensing renewal requirements.
3 Increase accessibility to higher education among non-traditional and high school students.
1 Increase educational equity and collaborative partnerships in the project service area for populations typically under-served by higher education.

The CALL-UTM program proposes to meet the educational attainment requirements set forth by the Head Start Act by creating access to information through technology. The National Mandate Performance Standard in 45 CFR Part 1304.52 (d)(1) requires that by September 30, 2003, at least half of all Head Start instructors in center-based programs must have an associate, baccalaureate, or advance degree in Early Childhood Education, or a degree in a related field with preschool teaching experience. This mandate has created a tremendous stress on programs located in rural West Tennessee (please refer to letter from Northwest Tennessee Head Start Director at **Appendix 4, p.27**).

In addition to the Head Start program, CALL-UTM will provide critical education and training services to teachers and rural families/children with special needs who participate in Tennessee’s Early Intervention System. UT Martin’s Child and Family Grant Programs will utilize CALL-UTM to provide training for teachers, parents, and children regarding specific disabilities and disciplines for developmentally disabled preschool children (please refer to letter from the Northwest District for Early Intervention Systems at **Appendix 4, p.28**).

Finally, the CALL-UTM project goals are consistent with the State of Tennessee’s comprehensive initiative for the Tennessee Information Infrastructure (TNII), which capitalizes on existing assets to create interoperable "network of networks" for all citizens. Currently,

existing technologies within K-12 and higher education learning institutions are not interoperable with each other. Of equal significance, low-to-moderate income individuals typically in under-served rural regions of the state do not, for the most part, have access to new and emerging technologies; thus, significantly lack in job preparedness and social integration.

The K-12 Task Force extension of TNII identified many institutional and administrative barriers in advanced technology. Financial limitations and obsolete/inadequate equipment are posing severe barriers to access and availability of advanced technology. The Task Force also identified a need to establish partners and conduct collaborative planning for future success. Technical training and expertise was noted as a major contributor to individual negative perceptions of advanced technologies (**www.state.tn.us/finance/oir/tnii/tniiroad.html**). With the implementation of CALL-UTM, these significant barriers and limitations can be overcome.

Project Outcomes resulting from the development of online courses and the employment of distance learning facilities for the delivery courses and workshops, will enable Head Start Instructors to meet nationally mandated educational levels. The project will also enable school teachers to meet state licensing renewal requirements in accordance with the *Professional License Renewal Guide for Tennessee Educators* (June 1997), and also enable Tennessee's Early Intervention System instructors and families to gain immediate access to critical information and training. Creating access to these advanced technologies will reduce barriers typically associated with rural county residents participating in such programs. The program will result in a decrease of approximately 25% in travel costs and time required away from home and job responsibilities in pursuit of "main campus" training, workshops, and courses typically offered by higher education institutions to "traditional" learners. Technology induced courses and programs will lead to degrees or professional development appropriate to the needs of non-traditional students in rural communities resulting in an increased percentage of target group populations benefitting from better access to higher education through distance learning.

Utilization of these technologies will also increase a high school student's ability to participate in UT Martin's dual-credit program. Rural community high school students have traditionally been unable to participate in this program due to the unavailability of instructors, and distance/cost barriers. Offering dual-credit courses via distance learning and interactive compressed video will enable students to participate in the dual-credit program, which will provoke the pursuit of higher education, enhance employment opportunities, and reduce the cost and time required to attend and graduate from college after high school. Costs to students for these courses are reduced by not having to pay an application fee, a technology fee, or a facility fee engendering savings of approximately $88 for a three- (3) credit hour course. A decrease in the amount of time a student will have to spend in college to obtain a degree will be an intermediate effect. Long-range success is expected to heighten community awareness and proficiencies and individual perceptions pertaining to technology while simultaneously strengthening the bond between UT Martin and West Tennessee schools.

2. PROJECT INNOVATION

The CALL-UTM project will establish technology networks, develop online and compressed video courses/workshops, and establish a Computer Donation Program (donate used university computers over the three year period of the grant: total of 60 computers) to assist rural communities in attaining nationally mandated educational levels within the Head Start program. These established networks, available technology, and distance learning facilities will also enable rural communities to gain access to critical information and training for families with developmentally disabled children. Finally, by offering specialized online and compressed video courses and workshops, rural residents with a computer at home, partnering school systems, and community residents participating in the CALL-UTM project are enabling the University of Tennessee at Martin to become a "virtual" community resource for West Tennessee.

Under the guidance of a technical advisory committee, portable interactive video stations will be placed in five rural schools in the Counties of Benton, Henry, Lake, Lauderdale and McNairy. Distance learning systems using two-way interactive compressed video and audio communications will allow the maximum amount of interactivity between teachers and students, and provide educational opportunities that would otherwise be unavailable or cost-prohibitive. Rural school systems will be able to interact with each other to offer courses not otherwise offered at another location. In a partner planning meeting, Henry County expressed an interest to offer physics to its high school students. This technology will enable schools to simply hook-up to the University router for connectivity between each other. Present barriers to communicating with other educators, accessing information, and combating professional isolation are some of the most highly rated incentives for using these technologies as a professional resource. Implementation of advanced technologies within the rural school systems will provide a unique opportunity of access for community residents to utilize the equipment for critical community outreach programs offered through Head Start and Tennessee Early Intervention Systems.

Tennessee has an obligation to provide its citizens with quality educational opportunities regardless of economic status or geographic location. One of the most unique and innovative features of the CALL-UTM program proposal is the opportunity for under-served persons to obtain a computer and modem hardware through CALL-UTM's Computer Donation Program. For the duration of the grant period and beyond, the University proposes to take 20 computers with modems out of faculty rotation each year, and donate the computer hardware (with software installed) to partnering school systems and counties. Partnering school systems will be able to upgrade their PC's for video and networking because this will be a continuous program. County officials will be able to provide low-income and/or special need persons with a means of access to education and information resources thus bridging the gap between technology and access to information.

This program is being initiated as an exemplar to be tracked and to determine new educational approaches making the best use of information technologies. The pedagogical foundation in school systems will be strengthened through implementing systematic changes to education curricula and the way it is delivered to the ultimate recipient; thus, effectively preparing teachers and students alike to use and apply advanced learning network technologies.

3. PROJECT DIFFUSION POTENTIAL

Throughout program evaluations, a determination will be made on how successful each of the individual components are and identify what lessons are to be learned that may be incorporated into a larger initiative that can be easily replicated across Tennessee and the nation (which will be very important since the Head Start program is a national program).

Each of the project stakeholders have recognized the need for documentation and collaboration of the information attained throughout the project to prevent recurring mishaps among partners, and focus on improving content delivery. Shared databases will be utilized for information sharing among institutions (including the establishment of a UT Martin CALL-UTM web-site). Summative information will be prepared at the end of each fiscal year in attempt to identify similarities and uniqueness in each participating community and provide valuable information for other schools and communities attempting to develop community lifelong learning programs. Both qualitative and quantitative assessments of data collected from stakeholder community surveys will be integrated into an information sharing system.

Program partners have agreed to further market and disseminate program successes and benefits through the use of direct career counseling, direct mailings, brochures and press releases to local news media. These alliances will assist in the sustainment and dissemination of the program goals and successes and continue to assist in maintaining this project as a pilot initiative for the region. UT Martin is considering putting together a demo reel on the project planning, implementation, outcomes, successes and obstacles for other institutions to replicate.

4. PROJECT FEASIBILITY

As part of the University of Tennessee video network, UT Martin has been delivering courses to several sites by means of interactive video classrooms and the World Wide Web and can deliver interactive video throughout the State. Interactive video classrooms utilize the H.320 protocol and currently require dedicated portions of T1 circuits or multiple ISDN circuits.

During the fall semester of 1999 The University of Tennessee system, the Tennessee Board of Regents system, and the State's Office of Information Resources signed a contract forming the Tennessee Network Information Infrastructure (TNII). During the summer of 2000, UT Martin system intends to switch network connections to TNII. During the following summer it intends to switch its interactive video network from H.320 protocols to the relatively new H.323 protocol and the related T.120 standard. The conversion to TNII will assure the quality of service necessary to allow the conversion to the new protocol and offer standardized platform for ease of interoperability with the Tennessee Network Information Infrastructure.

The UT system has studied the H.323 standard and has tested equipment utilizing this equipment and software and has determined that it has the flexibility needed to expand interactive video offerings to additional classrooms but also to the desktop. The future of interactive video lies in its ability to be delivered anywhere any time. H.323 protocols deliver the ability to mix voice, video and data and carried to anywhere an Internet connection is available. With the introduction of H.323, UT Martin will assist community partners in

establishing H.323 interactive video equipment at each of the partner sites. Internet bandwidths to the partner sites, and to the UT Martin campus, will be increased to accommodate extra network traffic generated by the interactive video requirements. A Multipoint Control Unit (MCU) capable of handling either H.320 or H.323 protocols will be placed on the Martin campus to accommodate simultaneous use of multiple interactive video sites. **Appendix 1** portrays the current video paths and the proposed interactive video network.

Soon to be trained on the H.323 protocol, Computer Services staff members currently support the campus networks, which include fiber optic cabling, category 5 cabling, and switched Ethernet connections utilizing multiple gigabyte back planes, as well as fileservers, web servers, e-mail servers, and others, utilizing Unix, Windows and Macintosh OS.

For this project one high school at each of the partners' city/county will receive a portable, but complete, interactive video station capable of participating in H.323 sessions with the other partners' equipment, as well as with the MCU and interactive video stations at the UT Martin campus. Two interactive video classrooms are being utilized at UT Martin; of which, one is compatible with the H.323 standard, but the software on it will have to be upgraded to support it. The equipment in the other classroom will be replaced by H.323 equipment in the summer of 2001. An H.323-compatible MCU will be purchased and will be utilized to tie all of the partner sites together as needed. With H.323, however, any one site can easily connect to any other single H.323 site without involving any of the other sites. Each site that does not already have at least a T1 circuit, or which does not already have adequate bandwidth to support the project, will purchase T1 circuits from TNII. This will provide the equipment and network necessary for the project. A new webserver will be purchased and installed on the campus to support the course offerings at the partner sites.

Mr. William Duffy, Director of the Office of Extended Campus and Continuing Education will be the Project Manager and will coordinate all training, course development, and offerings. Dr. Otha Britton, Director of the Office of Computing Services, will coordinate the technical aspects of the project, development of equipment and software specifications, evaluation of bids, purchase of equipment and services, and installation and technical training. Dr. Preston Prather, Director of the Center of Excellence for Mathematics and Science Education, will coordinate the project evaluation. Please refer to **Appendix 2** for Project Principals résumé’s.

Beyond the initial years of the project, each partner has committed to maintain up-to-date services utilizing both the Internet and the interactive video services. They will expand bandwidths for additional services to provide their communities with high-quality education. A complete Technical Implementation Schedule and Program Activities Timeline are found in **Appendix 3.**

5. COMMUNITY INVOLVEMENT

Partnerships have been an integral component in the development of this program proposal. The University of Tennessee at Martin has been working diligently with the Tennessee Board of Regents - Renaissance Center (TBR-RC) towards developing online courses and compressed courses via interactive video to meet the national mandate of educational requirements for Head

Start Instructors. UT Martin will offer upper division courses and TBR-RC will offer the lower division courses. Tabulation of planning meetings, partnership roles and commitment letters of all educational partners and supporting agencies are located in **Appendix 4.**

Involvement of the community - Program stakeholders have designed and developed the program initiatives.ave been established by. Numerous planning meetings have been conducted to identify community needs within the project service area on a grass roots level, to establish goals and anticipated outcomes, and determine levels of partnerships. UT Martin is confident in the levels of alliance attainment for program planning and performance of expected outcomes. Each desired program outcome was identified on the basis of need specified by project stakeholders.

Established partners have agreed to gather the necessary data and assess relevant statistics on the economic status pertaining to program goals and desired outcomes. The focus of analysis will be on areas such as socio-economic demographics, employment, college graduates, teenage pregnancies, and individual perception, which may attribute to potential barriers. Partner organizations are in a position to better understand the local dynamics that are helpful in understanding common problems typical in rural communities of the growing divide in advanced network technology; and thus, creating community-driven successful solutions. Therefore, established program partners will continue to develop focus groups and conduct collaborative planning sessions coupled with community needs assessment surveys to ascertain the inclusion of all segments of their community and the identification of targeted problems and issues to be addressed throughout program implementation. Key alliances will continue to play an integral role in the ongoing concern of the program. These alliances will actively seek to build a keen awareness within the communities with an intent to gain additional participants to actively engage in online/interactive compressed video learning exchanges.

Support of end users will involve a minimum of three UT Martin Computer Center staff members to be trained in the use and support of the interactive video equipment. Staff will then train at least two teachers in each community, as well as several faculty members at UT Martin, in the use and basic troubleshooting of the equipment. Training will include designing web-based courses, principals of good practices, methods and learning theories for teaching and learning online, and assessment and learning of web based teaching and learning. Additional training in the development of interactive video class materials and of web-based materials will be provided both at the Dickson Renaissance Center, headquarters for the newly formed Tennessee Virtual University, and at the UT Martin Faculty Multimedia Center. K-12 educators and special needs educators will receive additional course and program training through UT Martin.

Methods for providing privacy for end users will be addressed at the technical utilization level through login scripts and passwords. The software chosen will have the necessary capabilities for secure logins and encrypted network transport. Existing university policies pertaining to privacy and security will be applied to all CALL-UTM project initiatives.

6 REDUCING DISPARITIES

West Tennessee contains the state's heaviest concentration of minority persons. The UT Martin student body has one of the highest percentages of minority individuals (16.4 %) within any predominantly white campus in the state. Total student body approximates 5,500 students; of which, 83% are full time, 58 % are female, 42% are male, and 16% are non-traditional. While Tennesseans comprise up to 89% of total student body, students from 36 of our nation's 50 states and from 32 foreign countries are also enrolled.

Poverty rate in Tennessee is 14.5% compared to 13.2% for the United States. The southern region of the United States has the highest level of poverty estimates as compared to other regions followed by the western region. Median household incomes and unemployment levels for the project service area as compared to Tennessee are shown below:

County	Median Household Income: 1990 Census	Variance with State Income of $29,546	Unemployment Rate January 2000	Variance with State Rate of 4.5%
Benton	$24,181	-22.2%	10.1	124.4%
Henry	$22,753	-29.9%	6.3	40.0%
Lake**	$20,730	-42.5%	7.5	66.7%
Lauderdale	$22,516	-31.2%	7.5	66.7%
McNairy	$22,920	-28.9%	5.1	13.3%

** Lake County is characterized as economically distressed and is designated as an Enterprise Zone-Enterprise Champion Community.

According to the report *Falling Through the Net*, July 1995, a Survey of the "Have Nots" in Rural Urban America revealed the poorest households with income levels of less than $10,000 of household computer ownership was the lowest in rural areas (4.5%). There were 23.6% of households with a modem in low-income rural areas versus 43.9% in urbanized areas. An observation noted the most likely users of online courses are low-income users with income levels of $10,000-$14,999 in all areas. Rural minorities have the lowest household computer rates (6.4%) followed by central city minorities (10.4%). On the basis of age, the highest disparity levels are the most prevalent among the householder under 25 years of age, particularly in rural area. Generally speaking, the less that one is educated, the lower the level of computer, and computer household modem penetrations.

The CALL-UTM program is focused on the "Lifelong Learning" aspects of several targeted groups and on the application area of "Community Networking Services" at the family level. The purpose of the program is to overcome existing barriers of time, distance, job and family obligations, costs, availability and individual perceptions of technology typically preventing rural community residents from pursuing their educational needs or professional attainment. The program will help to address the state's concerns pertaining to the lack of college graduates (TN currently ranked 48th in the United States), address the increasing need to assist rural families

with the challenges of raising children in today's environment, and assist teachers in meeting state licensing requirements. Eventually, the network will extend the University school and library catalogues to the school systems and their libraries enabling greatly extended library services for students and residents of those areas.

Distance learning is already having an impact in the Southern United States. It is an ideal means to deliver education and community services to persons living in rural areas. The CALL-UTM project will provide these rural partner communities with an opportunity to take classes that have been specifically designed to provide skills that are valued by their local economies.

7. EVALUATIONS AND DOCUMENTATION

Project evaluation will be coordinated by the UT Martin Center of Excellence for Science and Mathematics Education (CESME). The Center, commissioned in 1983 by the Tennessee Higher Education Commission to promote excellence in multidisciplinary science and mathematics education throughout the state and beyond, is nationally recognized as a leader in educational innovation and leadership development.

CESME Director J. Preston Prather has been integrally involved in the project planning since inception. The evaluation plan was developed with assistance of Robert L. Hartshorn, CESME's Associate Director for Research and Evaluation. With a total of more than 30 years experience in project evaluation, they will each contribute 10% of their time to coordinate evaluative activities. An external evaluator, Evaluation Advisory Council, two full-time graduate research assistants, and part-time secretarial help will assist Prather and Hartshorn in the evaluation process.

CESME has used variants of the Westat approach to assessment for other programs and has been influential in the overall project planning. The CESME will identify and recruit an exemplary external evaluator with a national reputation as an authority on project assessment, an outstanding record of research and publications on the topic, and experience using multilevel and multipurpose evaluation approaches of the type adopted for this project. The external evaluator will assist the CESME with planning and direction of the evaluation process, development of strategies and instruments for data collection and interpretation of results, and a *Summative Evaluation Report* to be appended to the final project report.

The CESME will also oversee the formation of the Evaluation Advisory Council, which will consist of five exemplary leaders representative of the primary and secondary stakeholder groups. One member will be recruited from each of the following: (a) Partner County School Systems, (b) Head Start Programs, © Early Intervention Systems, (d) Students seeking dual high school/college credit, and (e) Teachers seeking licensing. Each council member will be responsible for obtaining input from their groups into the planning and evaluation process.

CESME-trained interviewers will conduct interpretive interviews. Graduate research assistants under supervision of CESME's Associate Director will process data for Research and Evaluation to be interpreted by the external evaluator. Data will be collected by standard qualitative and quantitative methods, using a combination of computer-based online instruments,

one-on-one interviews, and examination of databases to establish base-line data for assessment of project progress. Surveys of partners and stakeholders will be conducted to validate base-line data and facilitate subsequent comparisons. Pre-and post-assessments of participant needs and progress, on-site staff visits, tabulation of the nature and frequencies of distance-learning technology, and documentation of outputs and outcomes will provide additional data.

PARTNERSHIP ROLES

All partners shown below have a strategic role in the planning, development, implementation and delivery of the Community Access to Lifelong Learning through UT Martin (CALL-UTM).

TYPE	PARTNER AFFILIATION	STRATEGIC ROLES
Broker	Tennessee Virtual University (Renaissance Center)	Facilitate training activities Use of equipment for training
	Tennessee Head Start	Guidance on mandate compliance
	Tennessee Early Intervention System (TEIS)	Conduct and/or facilitate training Curriculum Development Advisory council for grant program implementation
	Tennessee Technology Center	Use of facilities and equipment Assist in facilitation of CDA Degree
	TN Department of Human Services TN Department of Children Services Tennessee Health Department	Identification/assessment of needs Referrals to TEIS Staff training
University	University of Tennessee at Martin	Project Leadership Fiscal Agent/Administration Bachelor Degree Award Award non-degree certificate Curriculum Development Quality Control/Project Reporting
	Tennessee Board of Regents - Renaissance Center	Associates Degree Award Curriculum Development Technological Training Assistance in Child Development
Educational /Government	Benton County Henry County Lake County Lauderdale County McNairy County All Five County Executive Offices	Co-Project leadership and planning Curriculum development Financial and in-kind contributions Community surveys needs assessment Program sustainment and dissemination Data collection and analysis Statistical demographic/community data
Business	Chosen Platform Company (e.g.	Pilot testing & published materials

	Blackboard, Inc.) Bell South and Qwest	Business consulting and advisory Technical assistance Cooperative opportunities